

IN THE CLAIMS:

Please CANCEL claim 2 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claims 1, 17 and 22, and ADD new claims 23-25, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1. (Currently Amended) An exposure apparatus having an illuminating optics unit for irradiating a reticle, on which a predetermined pattern has been formed, with exposing light emitted from an exposure light source, a reticle stage on which the reticle is placed, a projection optics unit for projecting the predetermined pattern of the reticle onto a substrate, and a substrate stage on which the substrate is placed, said apparatus comprising:

at least one chamber for internally accommodating the illuminating optics unit, the reticle stage, the projection optics unit and the substrate stage;

first pressure control means for making a value of pressure inside said at least one chamber higher than a value of pressure outside said at least one chamber; and

first correction means for correcting optical characteristics of the projection optics unit, by performing at least one of (i) moving an adjustment unit while controlling the value of pressure inside said at least one chamber based on the value controlled by said first pressure control means, for adjusting the optical characteristics of the projection optics unit and (ii) shifting a wavelength of the exposing light while controlling the value of pressure inside said at least one chamber, in accordance with the value of the pressure inside said at least one chamber.

2. (Cancelled)

3. (Previously Presented) The apparatus according to claim 1, wherein the interior of said at least one chamber is filled with inert gas.

4. (Previously Presented) The apparatus according to claim 3, wherein the inert gas is selected from the group consisting of nitrogen gas, helium gas and a mixed gas of nitrogen gas and helium gas.

5. (Previously Presented) The apparatus according to claim 1, wherein control is performed in such a manner that the value of the pressure inside said at least one chamber is made higher, by a fixed amount, than the value of the pressure outside said at least one chamber.

6. (Previously Presented) The apparatus according to claim 1, wherein the value of the pressure inside said at least one chamber is made constant.

7. (Previously Presented) The apparatus according to claim 1, further comprising a first pressure sensor for sensing the value of the pressure inside said at least one chamber and a second pressure sensor for sensing the value of the pressure outside said at least one chamber.

8. (Previously Presented) The apparatus according to claim 1, wherein said first correction means estimates an amount of change in optical characteristics of the projection optics unit based upon an index of refraction, which varies in accordance with the value of the pressure inside said at least one chamber, and corrects the optical characteristics of the projection optics unit based upon the estimated amount of a change in the optical characteristics of the projection optics unit.

9. (Previously Presented) The apparatus according to claim 1, further comprising a substrate load-lock chamber in the vicinity of the substrate stage and a reticle load-lock chamber in the vicinity of the reticle stage.

10. (Previously Presented) The apparatus according to claim 1, wherein the illuminating optics unit, the reticle stage, the projection optics unit and the substrate stage are accommodated in respective ones of separate chambers.

11. (Previously Presented) The apparatus according to claim 1, wherein the illuminating optics unit, the reticle stage, the projection optics unit and the substrate stage are accommodated in at least two separate chambers.

12-15. (Canceled)

16. (Previously Presented) The apparatus according to claim 1, wherein said adjusting unit includes a refraction lens.

17. (Currently Amended) An exposure apparatus comprising:

- an illumination optical system for illuminating a pattern formed on a reticle with light emitted from a light source;
- a projection optical system for projecting the pattern onto a substrate;
- a chamber for surrounding the projection optical system, wherein a value of pressure inside of said chamber is set to be higher than a value of pressure outside of said chamber;
- a pressure sensor to measure the value of pressure inside of the chamber; and
- adjusting means for performing at least one of (i) moving an adjusting unit disposed in the projection optical system while controlling the value of pressure inside of said chamber based on the measured value of inside pressure and (ii) shifting a wavelength of the light emitted from the light source while controlling the value of pressure inside of said chamber based on the measured value of inside pressure.

18. (Previously Presented) The apparatus according to claim 17, wherein the projection optical system is a system using reflection of the light.

19. (Previously Presented) The apparatus according to claim 18, wherein the adjusting unit includes a refraction lens.

20. (Previously Presented) The apparatus according to claim 17, wherein optical characteristics of the projection optical system are adjusted by moving the adjusting unit.

21. (Previously Presented) The apparatus according to claim 17, wherein optical characteristics of the projection optical system are adjusted by shifting the wavelength of the light.

22. (Currently Amended) A method of manufacturing a semiconductor device, comprising the steps of:

exposing a substrate by using an exposure apparatus; and

developing the exposed substrate,

wherein the exposure apparatus comprises:

an illumination optical system for illuminating a pattern formed on a reticle with light emitted from a light source;

a projection optical system for projecting the pattern onto a substrate;

a chamber for surrounding the projection optical system, wherein a value of pressure inside of the chamber is set to be higher than a value of pressure outside of the chamber;

a pressure sensor to measure the value of pressure inside of the chamber; and

adjusting means for performing at least one of (i) moving an adjusting unit disposed in the projection optical system while controlling the value of pressure inside of said chamber based on the measured value of inside pressure and (ii) shifting a wavelength of the light emitted from the light source while controlling the value of pressure inside of said chamber based on the measured value of inside pressure.

23. (New) The apparatus according to claim 1, wherein said first pressure control means controls the pressure inside said at least one chamber to make constant a difference between the value of pressure inside and the value of pressure outside said at least one chamber.

24. (New) A device manufacturing method comprising:

a step of exposing a substrate by using an exposure apparatus according to claim 1; and

a step of developing the exposed wafer.

25. (New) The apparatus according to claim 17, further comprising control means for controlling the value of pressure inside of said chamber to make constant a difference between the value of pressure inside and the value of pressure outside of said chamber.